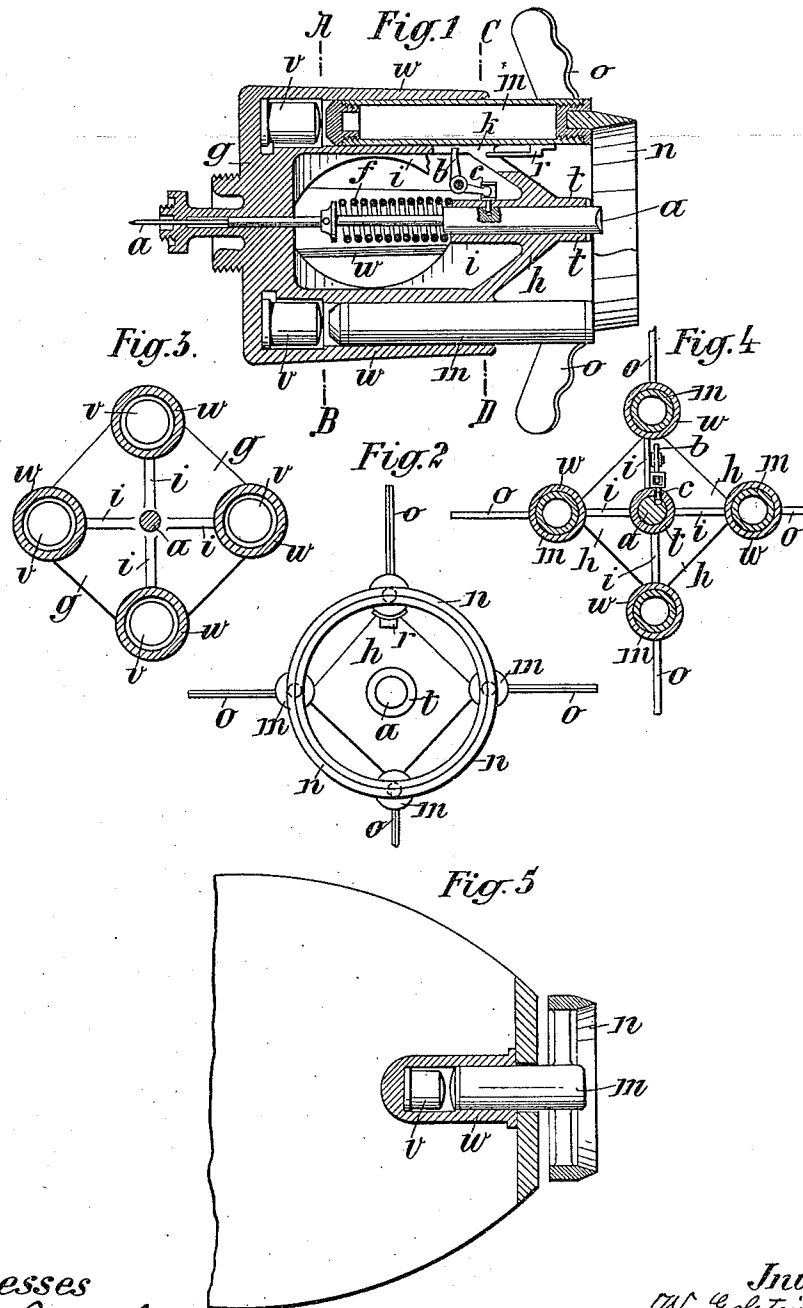


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 DEVICE FOR CUTTING OR DESTROYING TORPEDO NETS.
 APPLICATION FILED NOV. 7, 1911.

1,031,997.

Patented July 9, 1912.



Witnesses
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Specification of Letters Patent.

Application filed November 7, 1911. Serial No. 658,934.

To all whom it may concern:

Be it known that I, WILLEM GOLSTEYN, a subject of the Kingdom of the Netherlands, residing at Stalpertstraat 16^{II}, Amsterdam, Netherlands, have invented certain new and useful Improvements in Devices for Cutting or Destroying Torpedo-Nets, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to devices for cutting or destroying torpedo nets of the type in which an auxiliary charge is employed the explosion of which actuates a member which destroys the net.

The invention consists substantially in an improved device of the above type in which a number of firing tubes in the nose of the torpedo and lying parallel to the direction of its travel, contain piston like projectiles of which the ends projecting out of the firing tubes carry a common ring, the said projectiles causing discharge of cartridges contained in the firing tubes when they are forced into said tubes by the ring encountering a torpedo net. When a percussion bolt for the discharge of the torpedo is provided in the nose of the torpedo it is necessary that the tearing device should project beyond this bolt to prevent premature discharge. Owing to this circumstance, when a net is not present *i. e.* when the torpedo strikes the ship's side directly the torpedo would not be actuated since the ring projecting beyond the end of the percussion bolt, would prevent the latter from operating. To prevent this, special means are provided whereby when the ring strikes the ship's side directly the percussion bolt is securely operated. To increase the destructiveness of the device the ends of the projectiles projecting from the firing tubes may be provided with projecting wings or blades.

The invention is described with reference to the accompanying drawings, in which the first four figures relate to an example in which the percussion bolt is fitted in the nose of the torpedo while the firing tube for expelling the tearing ring is arranged symmetrically about the percussion bolt.

Figures 1 and 2 are a vertical axial section and an end elevation respectively. Figs. 3 and 4 are sections at A B and C D of Fig. 1. Fig. 5 shows a construction of the tearing device in which the ring is carried by a single projectile which lies in a firing tube arranged in the axis of the torpedo.

In the example of Figs. 1 to 4 a plate *g* which can be attached to the nose of the torpedo carries four firing tubes *w* arranged symmetrically to each other and to the axis of the torpedo. The plate *g* is also provided with a tube *t* lying in the extension of the axis of the torpedo, in which tube works the percussion needle *a*. The stiffening and connection of the four tubes *w* with each other and with the tube *t* is effected by four ribs *i* and a conically formed end wall *h*. Each tube *w* contains a piston-like projectile *m*. The ends of all these projectiles project from the tubes *w* and carry a ring *n* having a sharp front edge. In the charge space of each firing tube *w* is placed a cartridge *v* which is discharged when the projectile *m* is forced backward by encountering a net.

The percussion bolt which is acted on by a spring *f*, is held in cocked position by means of a locking pin *c*, the end of the said bolt then lying behind the plane of the edge of the ring *m*. The withdrawal of this locking pin *c* is effected by means of a bell crank lever *b* mounted on one of the ribs *i* and having an arm, lying in radial direction, and in the path of a projection *r* on one of the projectiles *m*, a slot *k* being provided in the wall *h* to allow the movement of this projection. The length of this projection *r* is such that it only encounters the arms of the bell crank lever *b* when the projectile *m* is forced completely into the firing tube *w* beyond the limit of firing, which occurs when a net is not present and the projectile *m* strikes directly the side of the ship.

To increase the destructiveness of the device, cutting wings or blades *o* may be provided at the front ends of the projectiles *m*. To insure the discharging of all the cartridges *v* the charge spaces of all the firing tubes *w* may be connected by firing channels.

The device operates as follows: When the torpedo strikes the torpedo net, the projectiles *m* owing to the small resistance of the net are driven into the tubes only far enough to effect discharge of the cartridges *v*. The projectiles *m* are thereby fired out of the tubes *w* and the ring *n* impelled against the net with the combined velocity of the torpedo and projectiles *m* thus tearing the net and enabling the torpedo to strike the side of the ship without obstruction. When the torpedo strikes against the side of the ship the end of the percussion

bolt *a* projecting beyond the tube *t* encounters the side of the ship and is forced into the firing position owing to the simultaneous shearing of the locking pin *c* and the action of the spring *f*. To prevent the percussion bolt *a* from glancing off the side of the ship, the end of the bolt is made concave. If the ship being attacked is not provided with torpedo nets the ring *n* strikes against the ship's side directly. The projectiles *m* are thereby forced inward but the expelling effect of the exploding cartridges *v* is not exerted owing to the kinetic energy of the torpedo, the projectiles *m* in spite of the explosion of the cartridges being driven farther into the firing tubes *w*.

In order to render certain the firing action of the percussion bolt *a* behind the plane of the front edge of the ring *n* also in the case when the projectiles *m* and the ring *n* are not fired out, the previously described arrangement of the releasing lever *b* and projection *r* is provided. In this case the projection *r* of the projectile *m* which is forced back, will rotate the lever *b* to the left thus lifting the locking pin *c* out of its normal position and freeing the percussion bolt *a*.

The modification shown in Fig. 5 is specially applicable in conjunction with firing mechanisms of the known type in which the firing of the torpedo charge is effected by means of a percussion bolt arranged in the interior of the torpedo and set in action by the inertia of a movably mounted heavy body when the torpedo strikes against a ship. In this modification the ring *n* for destroying the torpedo net, instead of being mounted on a number of projectiles, is carried by a single projectile ring which along with a cartridge *v* is located in a firing tube *w* in the axis of the torpedo.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

1. In a device of the character described firing tubes in the nose of the torpedo and disposed parallel to the direction of their travel, piston like projectiles, in said tubes, a ring carried on the projecting end of said projectiles, cartridges in said firing tubes discharged by said projectiles when they are forced into said tubes by the ring encountering a torpedo net.

2. In a device of the character described, having firing tubes in the torpedo parallel to the direction of their travel, piston like projectiles in said tubes, a percussion bolt, a spring acting on said bolt, a locking pin releasably holding said percussion bolt until piston like projectiles are driven deeply into said firing tubes.

3. In a device for destroying torpedo nets comprising firing tubes in the nose of the torpedo and disposed parallel to the directions of their travel, piston like projectiles in said tubes, a ring carried on the projecting ends of said projectiles, cartridges in said firing tubes discharged by said projectiles when they are forced into said tubes by the ring encountering a torpedo net, a spring actuated percussion bolt, a locking pin releasably holding said percussion bolt, until the piston like projectiles are driven deeply into said firing tubes and a cutting blade on the ends of said projectiles.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

WILLEM GOLSTEYN.

Witnesses:

D. P. DE YOUNG,
P. HILDERING.